WEATHER CONDITIONS ON THE NORTH ATLANTIC DURING JULY, 1915.

The data presented are for July, 1915, and comparison and study of the same should be in connection with those appearing in the Review for that month. Chart IX (XLIV–84) shows for July, 1915, the averages of pressure, temperature, and the prevailing direction of the wind at 7 a. m., 75th Meridian (Greenwich mean noon) time, together with the locations and courses of the more severe storms of the month.

PRESSURE.

The distribution of the average pressure for the month as shown on Chart IX was remarkably similar to the normal. The Azores HIGH, while slightly larger in area and greater in intensity than usual, was central very near its normal position, and the area usually covered by the Continental HIGH was surrounded by an isobar of 30 inches. The isobar showing the lowest mean barometric pressure for the month was 29.75 inches and extended from longitude 10° east to 10° west, between the 60th and 65th parallels.

July is usually a time of weak pressure gradients in the North Atlantic, and the month under discussion was no exception to the general rule. The average conditions were near the normal over practically the entire northern portion of the ocean, and the variations in pressure from day to day were not as large as usual. North of the 60th parallel the lowest barometer reading reported was 29.38 inches, and occurred on the 22d and again on the 23d, while the highest reading for the same locality was 30.13 inches, recorded on the 2d. In the waters adjacent to the American coast, between the 30th and 50th parallels, the pressure was unusually uniform during the month, as the extreme range of the barometric readings in this region varied from 29.50 inches on the 10th and 17th to 30.22 inches on the 22d and 23d. On the northeastern part of the ocean, while the average pressure was lower than along the American coast, the range was even less, and in mid-ocean the variations from day to day were remarkably small.

GALES.

July, like June, is usually comparatively free from gales, as the largest normal percentage ranges from 4 to 5 in the region north of the 50th parallel, where the maximum number usually occurs. In July, 1915, between the 45th and 50th parallels, and the 10th and 20th meridians, gales were observed on three days, or a percentage of 10, while the normal percentage for the same region is 3. In all other parts of the ocean the number observed varied but little from the normal, being slightly above in some cases and below in others. Most of the gales reported occurred in either the first or middle part of of the month, leaving the last decade comparatively free, with the exception of the disturbance that existed from July 29 to August 3, which is shown as Track II, Chart IX.

Only two tracks are plotted on Chart IX, although there were a number of disturbances whose paths were either too indefinite to show accurately, or else the centers were indeterminate on account of lack of observations.

From July 1 to 8 there was a low area of slight intensity that covered that part of the American coast between Canada and Virginia; this moved slightly from day to day, and was accompanied by light to variable winds, with considerable fog. On July 9 this LOW was central at Eastport, Me., and had increased in intensity, as the barometer at that place fell to 29.16 inches, which was the lowest reading of the month, and below that taken on board any vessel in the vicinity. Two vessels 5° south of the center reported westerly and southwesterly gales of 40 miles an hour, while in the north and northwest quadrants the winds were from light to moderate, accompanied by fog. By July 10 this disturbance had moved about 4° toward the north; the barometer at its center had risen to 29.44 inches, and the wind decreased in force.

On July 6 a LOW was central off the European coast, about 6 degrees west of the Scilly Islands. Two vessels a short distance south of the center recorded northwest winds of from 45 to 55 miles an hour, the latter being the highest velocity reported during the month. This LOW moved in a northeasterly direction, and on the 7th was near the east coast of England; the pressure was somewhat less than on the day before, although the wind had decreased in force, as no gales were reported. From the 8th to the 14th this depression remained in the vicinity of the Scandinavian Peninsula: it moved somewhat from day to day, but had no well-defined path and was of slight intensity.

On Chart III (XLIII–66, July 1915), showing tracks of low areas, a LOW (I on Chart IX) is shown that first appeared in eastern Nevada on the night of July 8, 1915. This moved in an easterly direction at a fairly uniform rate of speed, and on the 12th was apparently central near Quebec; on this date the depression was shallow and covered a large area, and consequently it was impossible to locate the approximate position of the center. Light to moderate winds prevailed, and fog was reported over the southern part of the area. The LOW then continued in its easterly movement, and on the morning of the 13th the center was near St. Johns, Newfoundland, where the barometer had fallen to 29.54 inches, without, however, causing any corresponding increase in the velocity of the wind; fog still prevailed off the Banks of Newfoundland, and along the 40th parallel, between the 65th meridian and the American coast. Curving toward the northeast, the area of low pressure was near the 52d parallel and the 47th meridian on the morning of the 14th; it had increased in extent since the previous day, but there was little change in the force of the wind, and fog still covered a large area. The disturbance continued in its course, with a comparatively uniform rate of translation, and a material increase in intensity. On the 15th the center was near latitude 53° N., longitude 57° W., and the isobar surrounding the area of low pressure assumed a well-defined, elliptical form, while the lowest barometric reading was 29.43 inches. Several vessels reported gales of from 40 to 50 miles an hour, and the fog disappeared with the increase in the velocity of the wind. The LOW then increased considerably in its rate of movement, and on the 16th the center was about 100 miles west of the coast of Ireland. The barometer had fallen slightly since the previous day, but the extent of the low area remained practically the same. There was little change in the force of the wind, and gales were encountered over a considerable territory. The disturbance contined on its easterly course and on the 17th covered the greater part of the North Sea, the eastern part of England, and extended into Germany on the south and Norway on the north. The intensity of the

LOW had evidently moderated, although it was impossible to show the conditions accurately on account of the few observations. The LOW then curved in a northeasterly direction, and on the 18th the center was on the west coast of Sweden, near the 58th parallel. The conditions of wind and weather were apparently about the same as on the previous day, as far as could be judged from the limited number of reports received from that region. The disturbance evidently continued in its northeasterly course, but it was impossible to trace it farther, from lack of observations.

From July 19 to 28 low pressure was continuously present in the region between the 50th and 65th parallels and the 15th meridian west longitude and the 5th meridian east longitude. During that period the low covered different parts of the region, contracting and expanding from day to day, but its intensity was never great, nor was it accompanied by any heavy winds.

On July 29 a LOW (II on Chart IX) appeared near latitude 51, longitude 38. This area was not well developed, although south of the center gales of 40 miles were encountered, while in the southwest quadrant fog prevailed. This LOW moved rapidly in a nearly due east direction, and on the 30th was central about latitude 51, longitude 19. The barometer reading at the center had fallen to 29.68 inches, and the low area assumed a more definite shape, although the winds had not increased in velocity. The easterly movement during the next 24 hours was greatly diminished, and on the 31st the low was near latitude 50, longitude 15 W. The lowest barometric reading was 29.33 inches, and the area had decreased in extent since the previous day, and one vessel near the center reported a northeasterly gale of 48 miles an hour. The disturbance continued slowly in its easterly course, increasing in intensity, and on August 1 was near latitude 50° N., longitude 12° W., where strong gales, with rain, were reported. After this date it began to decrease gradually in intensity, while the area increased, and by August 3, when it was central near Yarmouth, no heavy winds were reported.

TEMPERATURE.

North of the 40th parallel the average temperatures for the month were, as a whole, somewhat above the normal, the departures ranging from 0 to +4 degrees. Between the 35th and 40th parallels and west of the 30th meridian the temperatures were from 1 to 2 degrees below the normal, while in the southeastern part of the ocean the conditions were reversed, as in the vicinity of the Cape Verde Islands positive departures of from 4 to 5 degrees existed. In the waters adjacent to the European coast the temperatures were nearly normal north of the 40th parallel and increased slightly toward the south. Along the American coast they were rather irregular, as in the 5-degree square between the 40th and 45th parallels and the 65th and 70th meridians the departure was +1, while in the south adjacent square it was −3 degrees.

The temperature departures at a number of Canadian and U. S. Weather Bureau stations on the Atlantic and Gulf coasts were as follows:

	°F.
St. Johns, Newfoundland	−3.2
Sydney, C. B. I.	−0.9
Halifax, N. S.	+0.1
Eastport,	−1.7
Portland	−3.6
Nantucket	−0.7
Block Island	+0.2
New York	−1.0
Washington	−0.7
Norfolk	−1.0
Hatteras	−0.8
Charleston, S. C.	+0.9
Key West	+0.7
Pensacola	+0.4
New Orleans	+3.4
Galveston	0.0
Corpus Christi	+0.1

FOG.

During the period from 1901 to 1906 for the month of July the average percentage of days with fog off the Banks of Newfoundland was from 50 to 55, while in the same region for July, 1915, it was observed on 18 days a percentage of 58. Along the northern sailing routes west of the 30th meridian the amount of fog was considerably above the normal, while in the vicinity of the British Isles it was somewhat less. The same conditions held true in the waters adjacent to the American coast, between the 35th and 45th parallels, where the percentage was slightly below the normal, although the departures were small.

PRECIPITATION.

No snow or hail was reported during the month.

Maximum wind velocities during July, 1916.

[Velocities below 50 mi./hour (22.4 m./sec.) are not included.]

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Mls./hr.				*Mls./hr.*	
Charleston, S. C.	13	64	ne.	Mt. Tamalpais, Cal.	17	52	nw.
Do.	14	64	n.	Do.	25	76	nw.
Charlotte, N. C.	14	60	e.	Do.	26	61	nw.
Columbus, Ohio.	31	78	nw.	Nantucket, Mass.	21	50	sw.
Erie, Pa.	2	62	w.	New York, N. Y.	2	54	s.
Grand Forks, N. Dak.	6	52	sw.	Do.	13	60	sw.
Hatteras, N. C.	19	50	n.	Pensacola, Fla.	5	104	se.
Helena, Mont.	2	54	sw.	Do.	6	67	s.
Do.	12	52	sw.	Do.	7	52	sw.
Huron, S. Dak.	22	56	se.	Do.	8	50	sw.
Indianapolis, Ind.	2	52	nw.	Pierre, S. Dak.	16	53	sw.
Louisville, Ky.	2	52	n.	Pittsburgh, Pa.	2	50	nw.
Mobile, Ala.	5	107	e.	Point Reyes Light, Cal.	3	56	nw.
Mount Tamalpais, Cal.	4	60	nw.	Do.	5	59	nw.
Do.	5	61	nw.	Do.	14	58	nw.
Do.	6	52	nw.	Do.	16	60	nw.
Do.	7	54	nw.	Do.	17	50	nw.
Do.	8	61	nw.	Do.	25	78	nw.
Do.	12	62	nw.	Do.	26	72	nw.
Do.	13	60	nw.	Do.	27	54	nw.
Do.	14	50	nw.	Salt Lake City, Utah.	2	60	nw.
Do.	15	51	nw.	Do.	24	50	sw.
Do.	16	52	nw.	Springfield, Mo.	4	50	s.